

MAY 12 2003

Please place a plus sign (+) inside this box →

+

PTO/SB/08A (08-00)

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Complete if Known

Application Number	09/748,051
Filing Date	December 22, 2000
First Named Inventor	Louis B. ROSENBERG
Group Art Unit	2672
Examiner Name	Jeffery A. Brier
Attorney Docket Number	IMMR050/03US

Sheet	1	of	3
-------	---	----	---

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
JB	A1	5,785,630		Bobick, et al.	07/28/1998
JB	A2	5,766,016		Sinclair et al.	06/16/1998
JB	A3	5,547,382		Yamasaki et al.	08/20/1996
JB	A4	5,466,213		Hogan et al.	11/14/1995
JB	A5	5,334,027		Wherlock	08/02/1994
JB	A6	5,309,140		Everett, Jr., et al.	05/03/1994
JB	A7	5,299,810		Pierce et al.	04/05/1994
JB	A8	5,275,174		Cook	01/04/1994
JB	A9	5,271,290		Fischer	12/21/1993
JB	A10	5,240,417		Smithson et al.	08/31/1993
JB	A11	5,212,473		Louis	05/18/1993
JB	A12	5,078,152		Bond et al.	01/07/1992
JB	A13	5,038,089		Szakaly	08/06/1991
JB	A14	5,035,242		Franklin et al.	07/30/1991
JB	A15	5,022,407		Horch et al.	06/11/1991
JB	A16	5,019,761		Kraft	05/28/1991
JB	A17	4,934,694		McIntosh	06/19/1990
JB	A18	4,930,770		Baker	06/05/1990
JB	A19	4,891,764		McIntosh	01/02/1990
JB	A20	4,794,392		Selinko	12/27/1988
JB	A21	4,713,007		Alban	12/15/1987
JB	A22	4,708,656		de Vries et al.	11/24/1987
JB	A23	4,599,070		Hladky et al.	07/08/1986
JB	A24	4,581,491		Boothroyd	04/08/1986
JB	A25	4,513,235		Acklam et al.	04/23/1985
JB	A26	4,236,325		Hall et al.	12/02/1980
JB	A27	4,160,508		Salisbury, Jr.	07/10/1979
JB	A28	3,911,416		Feder	10/07/1975
JB	A29	3,903,614		Diamond et al.	09/09/1975
JB	A30	3,902,687		Hightower	09/02/1975
JB	A31	3,623,064		Kagan	11/23/1971
JB	A32	3,517,446		Corlyon et al.	06/30/1970
JB	A33	3,497,668		Hirsch	02/24/1970
JB	A34	3,220,121		Cutler	11/30/1965
JB	A35	3,157,853		Hirsch	11/17/1964

¹ Unique citation designation number.² See attached Kinds of U.S. Patent Documents.

Jeffery A. Brier 10/10/03

RECEIVED

MAY 15 2003

Technology Center 2600



INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete if Known	
		Application Number	09/748,051
		Filing Date	December 22, 2000
		First Named Inventor	Louis B. ROSENBERG
		Group Art Unit	2672
Examiner Name	Jeffery A. Brier		
Attorney Docket Number	IMMR050/03US		
Sheet	2	of	3

RECEIVED

MAY 15 2003

Technology Center 2800

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Office ¹	Number ²	Kind Code ³ (if known)		
JB	B1	EP	0 349 086	A1	Stork Kwant B.V.	01/03/1990
JB	B2	JP	H4-8381		Taito Corporation	01/13/1992
JB	B3	JP	H2-185278		Taito Corporation	07/19/1990
JB	B4	JP	H7-24147		Sega Corporation	01/27/1995
JB	B5	JP	H5-192449		Taito Corporation	08/03/1993

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
JB	C1	Baigrie, "Electric Control Loading - A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990	
JB	C2	Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993	
JB	C3	Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90	
JB	C4	Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985	
JB	C5	Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag), <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990	
JB	C6	Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," 1993 <i>IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993	
JB	C7	Snow et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989	
JB	C8	Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990	
JB	C9	Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90	
JB	C10	Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993	
JB	C11	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992	
JB	C12	Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WA11-11:00, pp. 332-337	
JB	C13	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992	
JB	C14	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992	
JB	C15	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993	
JB	C16	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990	

Jeffery A. Brier

10/10/03

¹ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).² For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.⁴ Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 3 of 3

Complete if Known

Application Number	09/748,051	RECEIVED MAY 15 2003 Technology Center 2600
Filing Date	December 22, 2000	
First Named Inventor	Louis B. ROSENBERG	
Group Art Unit	2672	
Examiner Name	Jeffery A. Brier	
Attorney Docket Number	IMMR050/03US	

7B	C17	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90	
7B	C18	Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980	
7B	C19	Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981	
7B	C20	McAffee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," JPL 1988, JPL D-5172	
7B	C21	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95	
7B	C22	Jacobsen et al., "High Performance, Dextrous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference & Exposition</i> , Hollywood, Florida, May 21-23, 1991	
7B	C23	Shimoga, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," <i>Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration</i> , Rensselaer Polytechnic Institute, Sep. 30- Oct. 1, 1992	
7B	C24	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990	
7B	C25	Terry et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference, University of New Hampshire</i> , March 10-11, 1988	
7B	C26	Howe, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation</i> , Nice, France, May 1992	
7B	C27	Eberhardt et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993	
7B	C28	Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987	
7B	C29	Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers</i> , San Francisco, CA, August 12-15, 1980	
7B	C30	Bejczy et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," <i>SOAR '89 Workshop, JSC</i> , Houston, TX, July 25-27, 1989	
7B	C31	Ouhyoung et al., "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," <i>IEEE Transactions on Consumer Electronics</i> , Vol. 41, No. 3, August 1995	
7B	C32	Marcus, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge</i> , Sep. 8-11, 1994	
7B	C33	Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987	
7B	C34	SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994.	
7B	C35	"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).	
7B	C36	"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

169803 v1/RE
3N0R01!.DOC

¹ Unique citation designation number.

² Applicant is to place a check mark here if English language Translation attached.

Jeffery A. Brier 10/10/03